

**VERTICAL CRACKS IN PRESTRESSED CONCRETE
GIRDERS PRIOR TO DETENSIONING**

(10-12-01)

Provide prestressed concrete girders without objectionable cracks. The provisions herein address prestressed concrete girders that have vertical casting cracks in the middle half of the member length prior to strand detensioning. Certain types of these cracks have been determined by the Department to render the girders unacceptable.

Unacceptable cracked members include, but are not limited to, those with two or more full height vertical cracks spaced at a distance less than the member depth. Such members are not considered serviceable and will be rejected. Full height cracks are cracks that begin at or near the top of the member and extend down to or below the center of gravity of the bottom group of prestressed strands.

Except as noted above, members with one or more vertical cracks that extend into the bottom flange are subject to an engineering assessment to determine their acceptability. If this engineering assessment requires, submit, at no additional cost to the Department, a proposal for repairing the member and a structural evaluation of the member prepared by a North Carolina Registered Professional Engineer. In the structural evaluation, consider the stresses under full service loads had the member not cracked and the effects of localized loss of prestress at the crack as determined by methods acceptable to the Department.

For members designed for zero tension under full service loads, the maximum magnitude of the computed concrete tension at the lower end of the cracks is the square root of the specified design strength of the concrete. The maximum width of the crack at the bottom of the web is 3 mils (0.075 mm) after detensioning. For all other members, the maximum magnitude of the computed concrete tension at the lower end of the crack is 350% of the square root of the specified design strength of the concrete, and the maximum width of the crack at the bottom of the web is 4 mils (0.100 mm) after detensioning.

The Department has final determination regarding acceptability of any members in question.